Claims

1. An oxygen storage material comprising cerium oxide with at least one other oxide of a component selected from the group consisting of silicon and zirconium, wherein the cerium oxide and said other oxide are present in the form of a mixed oxide, produced by a process comprising first preparing a hydroxidic precursor of said mixed oxide using a wet-chemical route, drying said precursor at temperature from 80 to 300°C with the formation of an oxide/hydroxide/carbonate dried mixture, and treating the dried mixture under a hydrogen-containing atmosphere at a temperature from 600 to 900°C for a period of 1 to 10 hours.

2. The oxygen storage material according to claim 1, wherein the oxide/hydroxide/carbonate mixture before thermal treatment under the hydrogen-containing atmosphere has a loss on ignition of 6 to 20 wt.% and a specific surface area of at least 140 m^2/g.

3. The oxygen storage material according to claim 2, which contains 20 to 99 wt.% cerium oxide, with respect to its total weight.

4. The oxygen storage material according to claim 3, which contains 60 to 90 wt.% cerium oxide and 40 to 10 wt.% zirconium oxide, with respect to its total weight.

5. An oxygen storage material containing cerium oxide with at least one other oxide of silicon or zirconium, wherein the cerium oxide and the other oxide are present in the form of a mixed oxide, produced by a process comprising treating a pre-made oxide/hydroxide/carbonate mixture of cerium and zirconium and/or silicon with a loss on ignition of more than 6 wt.% and a specific surface area of more than 140 m^2/g under a hydrogen-containing atmosphere at a temperature between 600 and 900°C for a period of 1 to 10 hours.

6. The oxygen storage material according to claim 1, further comprising 0.5 to 20 wt.% of at least one of the metals selected from the group consisting of yttrium, scandium, lanthanum, praseodymium, neodymium, samarium, gadolinium and terbium, calculated as oxide.

7. The oxygen storage material according to claim 2, further comprising 0.5 to 20 wt.% of at least one of the metals selected from the group consisting of yttrium, scandium, lanthanum, praseodymium, neodymium, samarium, gadolinium and terbium, calculated as oxide.

8. The oxygen storage material according to claim 3, further comprising 0.5 to 20 wt.% of at least one of the metals selected from the group consisting of yttrium, scandium, lanthanum, praseodymium, neodymium, samarium, gadolinium and terbium, calculated as oxide.

9. The oxygen storage material according to claim 4, further comprising 0.5 to 20 wt.% of at least one of the metals selected from the group consisting of yttrium, scandium, lanthanum, praseodymium, neodymium, samarium, gadolinium and terbium, calculated as oxide.

10. The oxygen storage material according to claim 5, further comprising 0.5 to 20 wt.% of at least one of the metals selected from the group consisting of yttrium, scandium, lanthanum, praseodymium, neodymium, samarium, gadolinium and terbium, calculated as oxide.

11. An oxygen storage material according to claim 5, which has a specific surface area of more than 20 m^2/g.

12. A catalyst for the treatment of exhaust gases from internal combustion engines comprising the oxygen storage material according to claim 1.

13. The treatment of exhaust gases from internal combustion engines comprising the oxygen storage material according to claim 6.

14. The oxygen storage material according to claim 1 wherein said wet-chemical route is co-thermohydrolysis of an aqueous solution of a cerium salt and a zirconium and/or silicon salt.

15. The oxygen storage material according to claim 1 wherein said wet-chemical route is coprecipitation of salts of cerium, zirconium and/or silicon from an aqueous solution in the form of hydroxides by adding a base.

16. A honeycomb carrier coated with the oxygen storage material according to claim 1.

17. The honeycomb carrier according to claim 16 which further contains a coating of a platinum group metal.

18. A process for the purification of exhaust gases from an internal combustion engine comprising passing the said gases in contact with the honeycomb catalyst according to claim 16.

19. A process for preparing an oxygen storage material for use in an automobile exhaust gas purification system, comprising preparing a hydroxidic precursor of a mixed oxide of cerium and at least one of silicon or zirconium by a wet-chemical process, drying said precursors at a temperature from 80°C to 300°C with the formation of an oxide/hydroxide/carbonate dried mixture, treating the dried mixture under a hydrogen-containing atmosphere at a temperature from 600°C to 900°C for a period of 1 to 10 hours.

20. The process according to claim 19 wherein said wet-chemical process is carried out by (a) co-thermohydrolysis of an aqueous solution of salts of cerium and at least one of zirconium or silicon or (b) precipating hydroxides of cerium and at least one of zirconium or silicon from an aqueous solution of their respective salts by adding a base to said aqueous solution.